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# Evaluating Decision Styles and Self-Efficacy in Medical Decision-Making Tasks

A Senior Honors Thesis

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By

Andrea Christine Borchers

The Ohio State University

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Project Advisor: Dr. Thomas Nygren, Department of Psychology

## Abstract

Individual differences and task-specific differences in decision making have been examined separately in the past. This study combines the two to empirically examine effects on self-efficacy after deciding whether or not to have a hypothetical risky medical procedure. Self-efficacy was examined using a new scale comprised of a combination of valid scales for general self-efficacy, global self-esteem, and instrumentality. Introductory Psychology students completed the Decision Making Styles Inventory (DMI) to provide information about their analytical, intuitive, and regret-avoidant decision styles. The results from the DMI were used as a covariant in analysis of reported task-specific self-esteem. Participants read different medical scenarios that used different types of task-specific differences: risk-assessments (conditional probabilities and natural frequencies) and length (short and long scenarios) were read by each participant. Results showed that regret-avoidant and intuitive decision styles were strongly correlated with task-specific self-efficacy. The tasks used in the experiment were found to be correlated with different dependent measures, indicating alternative possible task-specific differences. This research suggests that alternative populations should be considered, and that individual differences in decision style have important connections to self-efficacy. It is also suggested that certain task-specific differences may be very sensitive to the size of differences between variables.

# Evaluating Decision Styles and Self-Efficacy in Medical Decision-Making Tasks

Professionals from a multitude of disciplines such as physicians, psychologists, lawyers, forensics, and those in business, guide people everyday in making important decisions that will impact their lives. People have different goals and values from one another, so it is important for experts (e.g., physicians) to communicate information about treatments in a manner that will allow all people to make a good decision (Gigerenzer, 2002). Studies have shown that both specific situations and individual differences have important influences on decision making. These studies have focused on how people make decisions, and for the most part, they have been examined separately. This study attempts to combine these two components of decision making to better understand how people feel about high risk decisions they have made.

Decision making is complex, and much previous research has focused on what impacts decision making and how the information we process affects our decisions. Physicians attempt to prevent biasing their patients' decisions by providing information about risks in multiple forms. They may show the patient pictures or graphs and word information in multiple ways. The reason for providing this information is to avoid framing effects which occur when different choices are made from the same information when it is presented using different words. One example of framing effects described by Tversky and Kahneman (1981) demonstrated that people make a different decision when making a choice framed as a gain (25% chance to gain $1000, 75% chance to gain nothing), than when they make a choice framed as a loss (75% chance to lose $1000, 25% chance to lose nothing). Framing effects have been seen in many forms of decision making, including the wording of statistical information. While professionals

such as physicians attempt to include multiple frames when presenting information to patients, this can often mislead patients' understanding of the results (Hastie & Dawes, 2001), so a new way of guiding decisions is desirable. The best way to determine how to present information to help people make good decisions is to understand what is already known about influences on decision making.

A major type of situation specific influence on decision making is how statistical information is presented. Recent research has demonstrated that there are two ways that statistics are explained to people. First, conditional probabilities give statistic risk assessments such as: 1% chance, or a .01 probability you will get a disease. Second, natural frequencies present statistical results such as: 1 person out of 100 tested will get a disease. Studies have shown that when statistical information is presented as conditional probabilities, people are more confused about what these numbers mean than if the statistic is presented in terms of natural frequencies (Hoffrage, Lindsey, Hertwig, & Gigerenzer., 2000; Kramer & Gigerenzer, 2005). This confusion likely occurs because probabilities are less informative and do not indicate sample sizes to gage the statistics. Gigerenzer (2002) noted the difference in explaining statistical risk assessments as conditional probabilities rather than natural frequencies as a significant problem. His results indicated that without being given proper statistical information, many patients actually estimated the probabilities for different diseases to be the same. Confusion in interpreting statistical results can lead people to make decisions that are misinformed; therefore, improvements are necessary to help physicians with this major situational aspect of making decisions.

A second component that acts on situation specific decision making is the quality and quantity of information a patient is given. A variety of research has been done examining the effects different quantities of information have on decision making. Keller and Staelin (1987) concluded that when people are given too much information, they will make less effective decisions, and that better quality information will increase decision effectiveness. Therefore, people should be presented with a minimum amount of information that is relevant so they can make a good decision. Patients should be provided with enough content to be fully informed about the decision they need to make, but the information should be relevant and limited to avoid confusion.

While some decision making studies have focused on situational aspects such as the presentation of statistical information, and differences in the quality and quantity of information on decision making, other studies have examined the influences of individual differences. Decision making styles are a major area where individual differences exist. The Decision Making Styles Inventory (DMI) is a reliable and valid self-report measure of decision making styles developed by Nygren (2000) to assess individual differences in performance on decision making tasks. The DMI includes three subscales which measure the tendency for a person to be more of an analytical, an intuitive, or a regret-avoidant decision maker. The inventory also determined that some people were flexible in their style, and were decision makers who could use either an analytical or intuitive decision style, depending on the situation. Nygren and White (2002, 2005) examined a variety of effects that correlate with the DMI; from these studies, patients who differed in their decision making style were likely to differ in satisfaction with their decisions. Finding a method of presenting information to help

patients make decisions for which they are confident and happy is the first reason that decision making style should be considered.

Another reason to consider differences in decision making style is that they appear to have differing effects on performance (Nygren & White, 2002). Performance was found to vary depending on individual decision making style, and was best in individuals who were capable of switching between styles. The DMI also showed that framing effects on task instructions could influence performance, and people changed their decision based on the framed decision making style. The people who were framed in styles that contradicted their personal decision making style had lower performance than the others. As previously noted, decision making style has a significant influence on performance. Therefore, a physician could give people with different styles of decision making the same information, and they would make different decisions. If the questions were framed to evoke a certain decision making style, this could also influence the decision the person might make.

Previous studies on decision making have focused on what influences decision making, but how do these components influence self-efficacy? According to Wood and Bandura (1989), “Self-efficacy refers to beliefs in one’s capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands.” Self-efficacy encompasses much more than unconditional self-regard, also known as global self-esteem, which only takes into account the beliefs that one has in oneself. Both self-efficacy and self-regard are important when considering influences on peoples’ decision making. Ideally, people want to make good decisions; but they also want to maintain high levels of belief in themselves and their capabilities. A feeling of

instrumentality, the ability to take action and feel a sense of control over the situation, is also likely to be associated with the feeling of making a good decision. Nygren and White (2005) found that measures of self-efficacy, esteem, and instrumentality were all correlated with the DMI. People varied on these measures, depending on their decision making style. While studies by Nygren and White (2002; 2005; White & Nygren, 2002) have demonstrated the importance of decision making style on performance, the predictions made by the DMI were correlated with individual differences in how decisions were made. They do not represent how the decisions influence self-efficacy or the other measures.

The present experiment is the first to explore how individual differences and situation-specific influences may work together to guide decision making. Bridging these two areas is critical to understanding how the measures correlated with decision making styles are influenced by various situations. If information can be presented to patients in a way that improves self-efficacy, unconditional self-regard, and instrumentality independent of decision making style, people will be able to make good individual decisions. Understanding how task-specific differences affect the way that people feel about their decisions is critical for improving the patient-physician relationship because it will allow physicians to be sure that patients are making informed, comfortable decisions.

The purpose of this study is to gain an understanding of what effects the presentation of information in different ways has on an individual's perception of self-efficacy, self-esteem, and instrumentality in their decisions. The current study examines both situational differences and aspects of the DMI to determine if how information is

presented has an influence on the way people feel about their decisions. While this study is focused on medical situations, it should be able to help professionals outside of the medical arena to guide people in making the best decisions possible for themselves. I hypothesized that people would feel different levels of self-efficacy after deciding whether or not to have a risky medical procedure when they were given different quantitative amounts of information (short and longer overviews), and different statistic risk-assessments (conditional probabilities and natural frequencies) about specific health conditions and possible risky procedures. I also hypothesized that decision making style would have an impact on overall feelings of self-efficacy. Because of the powerful effects of framing (i.e. Tversky & Kahneman, 1981), I expected that the presentation format and quantity of information could be significant enough to alter the level of self-efficacy that would be predicted by learning style alone.

In addition, I hypothesized that people who were better informed would have improved self-efficacy. My goal was to determine which way of presenting information made people feel that they made the best decision for themselves. This decision was not expected to be the same for everyone because of differences in personal values. However, improvement in self-efficacy and confidence were expected to be the same within similar conditions between similar types of tasks.

First, I predicted that people given a large quantity of relevant (quality) background information would show higher self-efficacy than those given minimal information about a situation. The scenarios with more quality information should give people a better understanding of what they are making a decision about, as shown by Keller and Staelin (1987). Second, I predicted that those with risk assessment statistics

given as natural frequencies would demonstrate higher self-efficacy than those who were provided statistics given as probabilities. I expected this difference in self-efficacy to occur because probabilities tend to be more confusing than relative frequencies (Hoffrage, Lindsey, Hertwig, & Gigerenzer, 2000; Kramer & Gigerenzer, 2005). Third, I predicted that the effect of statistical data presentation would depend on the amount of information given to the participants (an interaction effect). Since no studies have previously used the DMI to analyze task-specific differences in comparison to individual differences, I could not be certain of the outcome. I did, however, expect the results to provide useful information for helping physicians present information to patients more effectively, and expand the understanding about how decision styles relate to task differences.

## Method

### *Participants*

One hundred ninety-five (146 male, 48 female, 1 did not report gender) introductory psychology students at The Ohio State University participated in this study. Participants were given course research credit for their participation. Eight participants (7 male, 1 female) were removed from analysis due to incomplete data.

### *Materials*

*Established Scales.* Participants first completed the Decision-Making Inventory (DMI), a fifty-five item (6-point Likert-type) self-report scale. The first forty-five questions assess the degree to which their decision-making style is “analytical”, “intuitive”, and “regret-based emotional.” Fifteen questions correspond to each of these three categories of decision making styles. The last ten questions evaluate procrastination

and also include filler questions. Participants also responded to a seventeen item generalized self-efficacy inventory, a twenty-seven item Instrumentality Scale, and a 25 item Unconditional Self-Regard Scale. All items in the first questionnaire used a 6-point Likert-type scale. (See Appendix A)

*Tasks.* Participants read four medical-based decision making scenarios: 1) having an amniocentesis to find out if their fetus has Down syndrome; 2) having a scleral buckling eye procedure to prevent retinal detachment; 3) having experimental injection therapy to prevent a benign mole from becoming cancerous; and 4) having bone surgery to insure a stress fracture heals properly. Each task dealt with different hypothetical medical-based risk situations: 1) 'amnio task', having/not having amniocentesis to determine if their fetus has Down syndrome; 2) 'eye task', having/not having a scleral buckling procedure to prevent retinal detachment (which can cause blindness); 3) 'injection task', having/not having an experimental injection therapy to prevent a benign mole on the arm from developing into skin cancer; and 4) 'bone task', having/not having bone surgery to insure a stress fracture in the leg heals properly. The situations were designed to use realistic situations, combined with similar statistical differences between the risks associated with having or not having the procedure. The statistical risks for amniocentesis are typical risks that might be expected. In order to maintain equality between the different situations used in this study, all tasks used variations of risks that were statistically similar to those as amniocentesis. Keeping statistical risks as similar as possible between situations allowed each task to create equally unfavorable (numerically) choices between having or not having the procedure (see Table 1).

*Independent Variables.* One independent variable in the scenarios was the amount of information (short versus long) provided. The 'short' version gave the minimum information necessary to make a decision about the situation, given the risks (~6 lines of text). The 'long' version included explanatory information about the treatment and/or the medical condition underlying the risk. The long versions were at least twice as long in length (~13 lines of text) as the short versions, and were split into two paragraphs to make them appear longer. Situations in the first condition were short, and statistical information was given as natural frequencies. The second condition had longer situations, but also gave statistical information as natural frequencies. The third condition had short situations, with statistical information given as conditional probabilities. Finally, the fourth condition had long situations, with statistical information given as conditional probabilities. The four conditions were counterbalanced within and between each of the four situations for a total of 16 different tasks, so each situation had an equal number of responses in all four conditions (see Appendix B).

*Dependent Measure.* After each task, participants marked whether or not they would choose to have the optional hypothetical treatment. Next, they responded to 21 questions that referenced the condition they just read. The questions assessed how well they understood the situations, and how they felt about making medical decisions. The first 18 questions were modeled after established scales for generalized self-efficacy, unconditional self-regard, instrumentality, and self-doubt. The last 3 questions assessed confidence in their decision (See Appendix C).

*Statistics check.* After completing both questionnaires, the students responded to four multiple-choice questions which assessed their general knowledge of statistics (See Appendix D).

*Design and Procedure*

Participants were first assessed for their tendency to use analytical, intuitive, and regret avoidant decision making styles, as determined by their responses to the DMI. In addition, they responded to the full scales (generalized self-efficacy, global self-esteem, and instrumentality) from which many of the task-specific questions were developed. These scales were supposed to help assess changes in their responses to the dependent measure. Next, participants read four different medical scenarios. Each task was created to contain similar content. All the scenarios required participants to make a decision about whether or not to have a medical procedure, and also explained the risks involved both with or without having the procedure. Every person read the same four scenarios, although the included details were varied between the scenarios that participants read. Each task included two statistics: half of the tasks used conditional probabilities; the other half used natural frequencies. In addition, the "long" scenarios included twice as much additional information as the "short" scenarios, related to the risks involved. After each scenario, participants decided whether or not to have the procedure, and responded to questions that demonstrated their confidence and task-specific self-efficacy after making decisions. At the end of the experiment, participants responded to questions related to understanding differences in statistics. This provided a better understanding as to how well they interpreted the statistics used in the scenarios. Resulting scores from the participants' responses were calculated for

each of their decision making styles, generalized self-efficacy, global self-esteem, instrumentality, and task-specific self-efficacy.

The study was a 2 (quantity of information given in the task) X 2 (type of risk assessment statistic used in the task) with-in and between subjects factorial design. The quantity of information given in the tasks had two levels (the 'long' version and the 'short' version). Risk assessment statistics were presented at two levels (conditional probabilities and natural frequencies). Decision style was used for covariate analysis.

## Results

The resulting correlations between analytical (ANA), intuitive (INT), and regret-avoidant (REG) decision styles followed the expected values reported for previous studies. ANA was positively correlated with REG (.336, $p < .05$), and INT was negatively correlated with REG (-.183, $p < .05$). ANA and INT were not significantly correlated (see Table 2).

A factor analysis was completed for the 18 items used as the dependent measure in each task. This analysis revealed that all 18 items were loading on a single factor. The first factor in each situation accounted for a majority of the variance, and the addition of a second factor did not result in a significant increase in the variance (see Table 3). Additionally, the factor matrix for each task indicated that all 18 items were strong (see Table 4). In the Amnio situation, the first factor accounted for 38.73% of the variance (factor loadings ranged from .381-.714). For the Eye situation, the first factor accounted for 43.31% of the variance (factor loadings ranged from .347-.805). With the Injection situation, the first factor accounted for 47.79% of the variance (factor loadings ranged from .403-.821). In the Bone situation, the first factor accounted for 47.22% of

the variance (factor loadings ranged from .373-.773). Factor analysis provided clear evidence that all 18 items were measuring a single factor, so items for each person were added in every task to create a single "task-specific self-efficacy" score. These task-specific self efficacy scores were used in subsequent analyses.

Correlations between task self-efficacy (task SE) and decision making styles were also examined. Results showed that REG (task Pearson Correlations between .395 and .448; all task p's < .001) and INT (task Pearson Correlations between .231 and .261; all task p's ≤ .001) were significantly correlated with reported task SE. ANA was not shown to be significantly correlated with task SE (highest task Pearson Correlations was .068; all task p's ≥ .352). The tasks themselves all had significant correlated task-SE scores (See Table 5).

Stepwise multiple regression analysis of the average reported task-specific self-efficacy score (R=.553, p < .001) showed both REG and instrumentality (confidence in judgment) scores were predictors of task-specific SE. REG was the best predictor of task SE. It should be noted that the other decision styles and the original score for the generalized SE scale were not predictors of task SE. Another regression analysis demonstrated that REG was a predictor of task-specific confidence ratings (R=.390, p = .027). A single-factor repeated measures ANOVA also was completed to compare reported self-efficacy in the 4 tasks. Each task was found to produce a different amount of self-efficacy (F=2.813, p = .039). The Injection and Bone tasks were the only two that showed significant differences in task SE (p=.034). However, the Amnio and Injection tasks were more closely related to one another and the Eye and Bone tasks were more related to one another (see Figure 1a).

A 2 x 2 between subjects ANCOVA, with INT and REG decision styles as covariates, showed that INT (all p's < .018) and REG (all p's < .001) were significant covariates in all 4 tasks. The ANA (all p's >.10) decision style was not significant for any of the tasks. This analysis also showed that scenario text length and type of statistics used did not significantly influence task-specific SE (see Figure 2).

Analyses were also conducted to examine other relationships with decision style. A single-factor repeated measure ANOVA compared the participants' decision to "have" or "not have" the hypothetical procedures offered in the 4 tasks. Pairwise comparisons showed that all tasks except the Amnio and Injection tasks (p = .052) were significantly different (all p's < .044) with respect to the participants' choice for having or not having the procedures (see Figure 1b).

Participants performed very well on the statistics check (Mean number wrong= .78). Across all subjects, 47% (N=88) got all 4 questions correct, 30% (N=57) missed 1 question, 20% (N=37) missed 2 questions, 3% (N=5) missed 3 questions, and no subjects missed every question. Correlations with each task revealed that the participants performance on the statistics check only was correlated significantly with task SE in the Bone task (p =.032). Correlations with task confidence and participants' decisions whether to have or not have the procedures were also examined. Task confidence and statistics competence were correlated in the Amnio task (p=.047), and the Bone task (p=.012), while the other tasks did not reveal a significant correlation. None of the procedure choices in each task were correlated with statistics ability.

## Discussion

The results from the present study provide important findings about how decision style and task-specific differences affect self-efficacy when making difficult hypothetical medical decisions. The first hypothesis proposed was that the level of self-efficacy reported after each situation would depend on the quantity of background information given, and the type of statistical risk assessment. While these two task-specific differences have been found to affect understanding about situations and choices for optional tasks, these variables did not show a significant effect on self-efficacy in this study. Before discussing possible reasons, it is important to discuss two other hypotheses.

A second hypothesis proposed was that decision making style would have an impact on overall feelings of self-efficacy. This impact was observed in the strong correlations between regret-avoidant and intuitive decision styles with task-specific self-efficacy in each task. In addition, the degree to which a person reported to be regret-avoidant in decision making style was the best predictor for their overall task-specific self-efficacy. Our results demonstrated that certain decision styles have a great impact on task self-efficacy. These results also suggested that decision styles determine task self-efficacy, and the task-specific differences will not have a strong enough effect to override such differences. However, a closer look revealed that the task-specific differences may not have been large enough to produce these effects within the sample.

The initial prediction that people given a large quantity of helpful information would have improved self-efficacy was not supported. An effect for scenario length may

not have been seen because the “long” situations may not have provided a significantly increased amount of information for people to feel that they had received enough detail to make an informed decision. This conclusion was also supported because analytical decision making style did not act as a covariate in the sample. Again, people may not have been given enough information or enough time in both the short and long conditions to make analytical decisions. Future studies should consider the maximum amount of information available to provide patients, or evaluate actual populations that have been affected.

The second prediction was that people would have higher self-efficacy in the natural frequency, risk-assessment statistical conditions than when conditional probabilities were presented. There may be several reasons why the statistical risk assessment condition did not have an effect on task self-efficacy in this study. First, the participants were all very good at understanding statistics. Thus, it was possible that many were mentally translating conditional probabilities into natural frequencies, which might not be typical in a clinical setting. Future studies should address whether or not a basic of understanding in statistics could produce different results with these types of decision making scenarios.

One concern in the analyses of the independent variables of task-specific differences was the presence of uncontrolled factors between the different tasks. However, each task was counter-balanced between conditions, with the analyses done separately on each task. The significant findings between the tasks that were significant in different dependent measures suggested another task-specific difference, differences in risk size, which should be examined more closely. While each task was

designed to have nearly equivalent risks, there was some slight variation in risk size between the different tasks. It remains possible that such slight variations may have influenced or biased the participants in some way. These possible differences may also explain the significant difference in task self-efficacy between the Injection and Bone tasks. The Injection task had the second lowest probability for the condition of concern, and the highest probability of complications with the optional procedure, whereas the Bone task had the highest probability for the condition of concern, and the second lowest probability for complications with the optional procedure (see table 1). These differences in risk may have contributed to why responses of self-efficacy in the Injection task were significantly lower than self-efficacy in the Bone task (see figure 1a). These differences may also account for why people in the Amnio (lowest probability for condition of concern; second highest probability for treatment complications) and Injection (second lowest probability for condition of concern; highest probability for treatment complications) tasks were significantly less likely to choose to have the optional treatment. The possible impact of this task-specific difference could be examined more closely for clarification in future studies of medical decision making.

The results of this study have provided a starting point for examining the impact of decision style and task-specific differences on self-efficacy following decisions. Before this information can be useful in clinical and other professional settings, additional research is necessary in considering alternative task-specific differences that may have influenced variables in the present study. In addition, future findings may be more successful looking at populations dealing with deciding whether or not to have actual medical procedures, rather than simply hypothetical scenarios. It is particularly

interesting that the current findings demonstrated that the regret-avoidant decision style was strongly correlated with feelings of self-efficacy after making decisions. Future research should consider how these styles can be understood in different applied settings to help people make the best decisions for their own circumstances and decision making styles.

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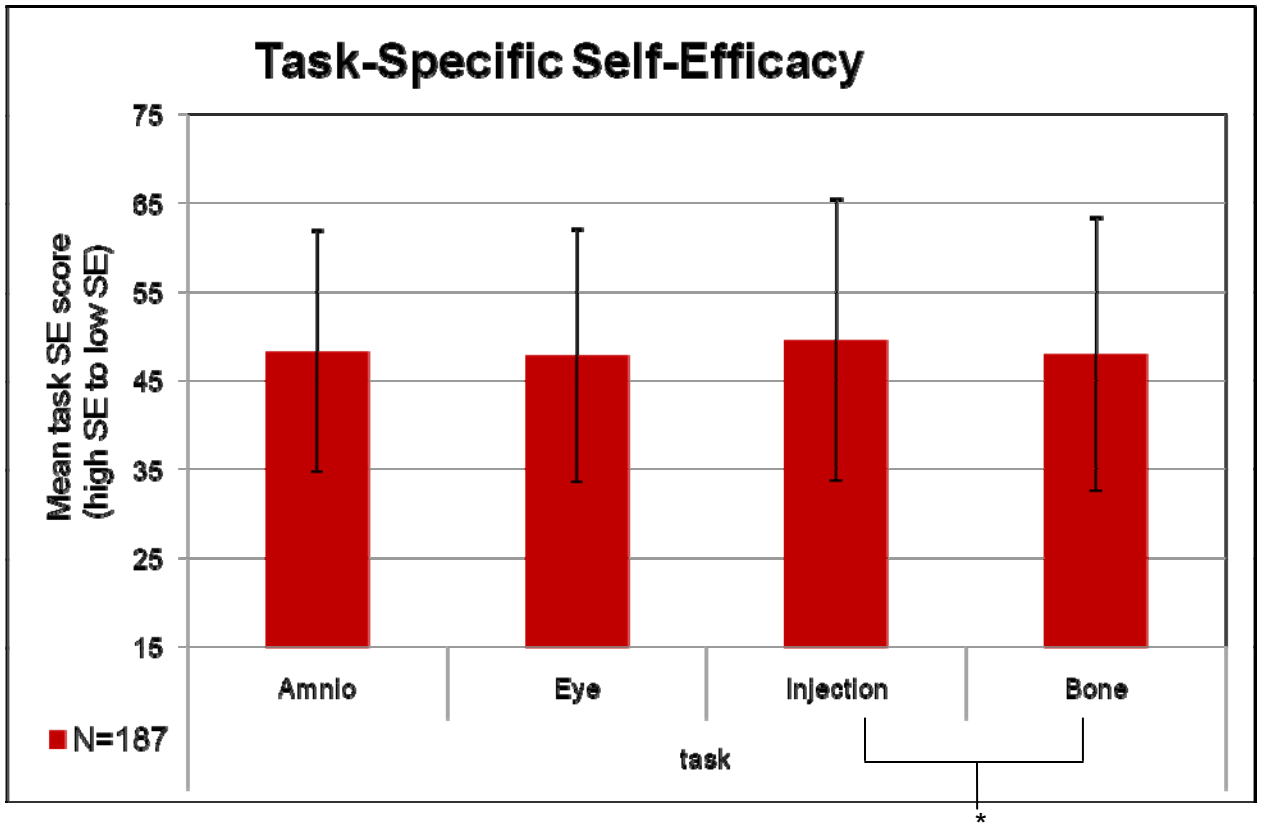
**Figure 1.** * indicates significant difference ($p < .05$)

a)




b)

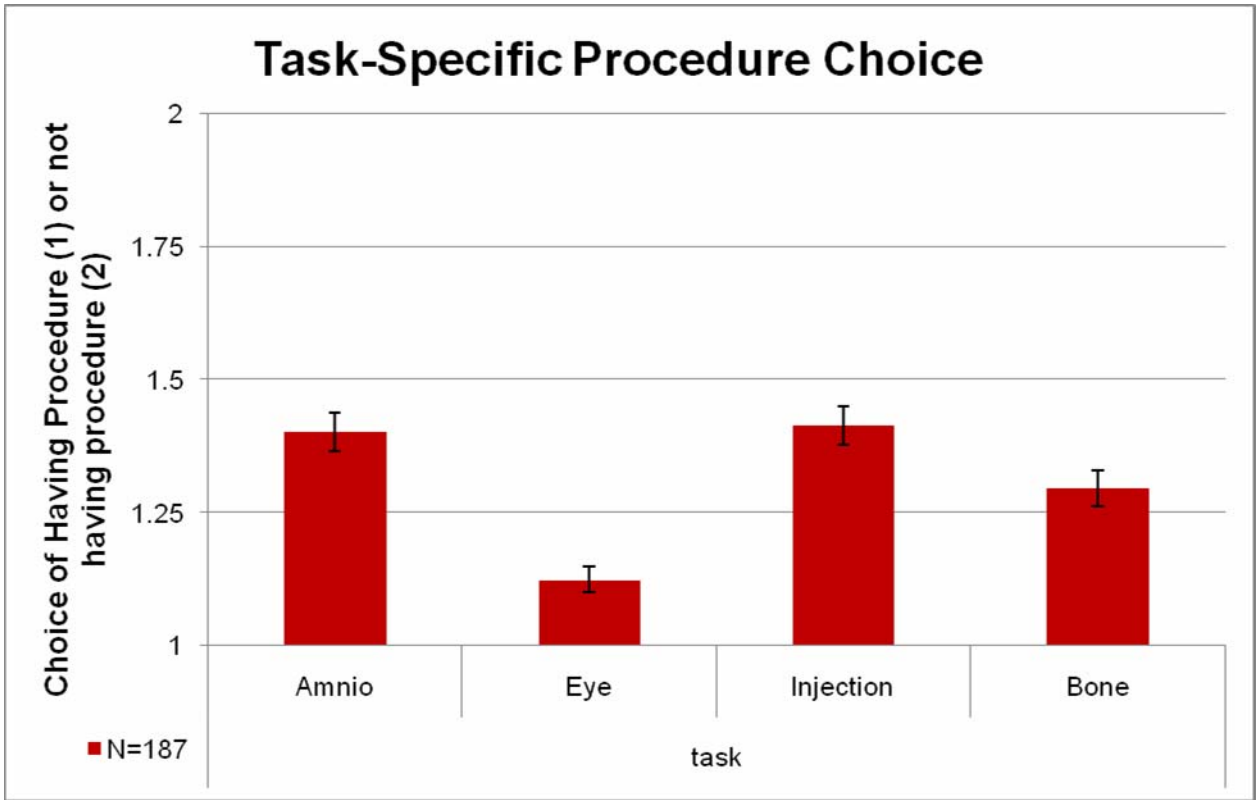


**Figure 2.**

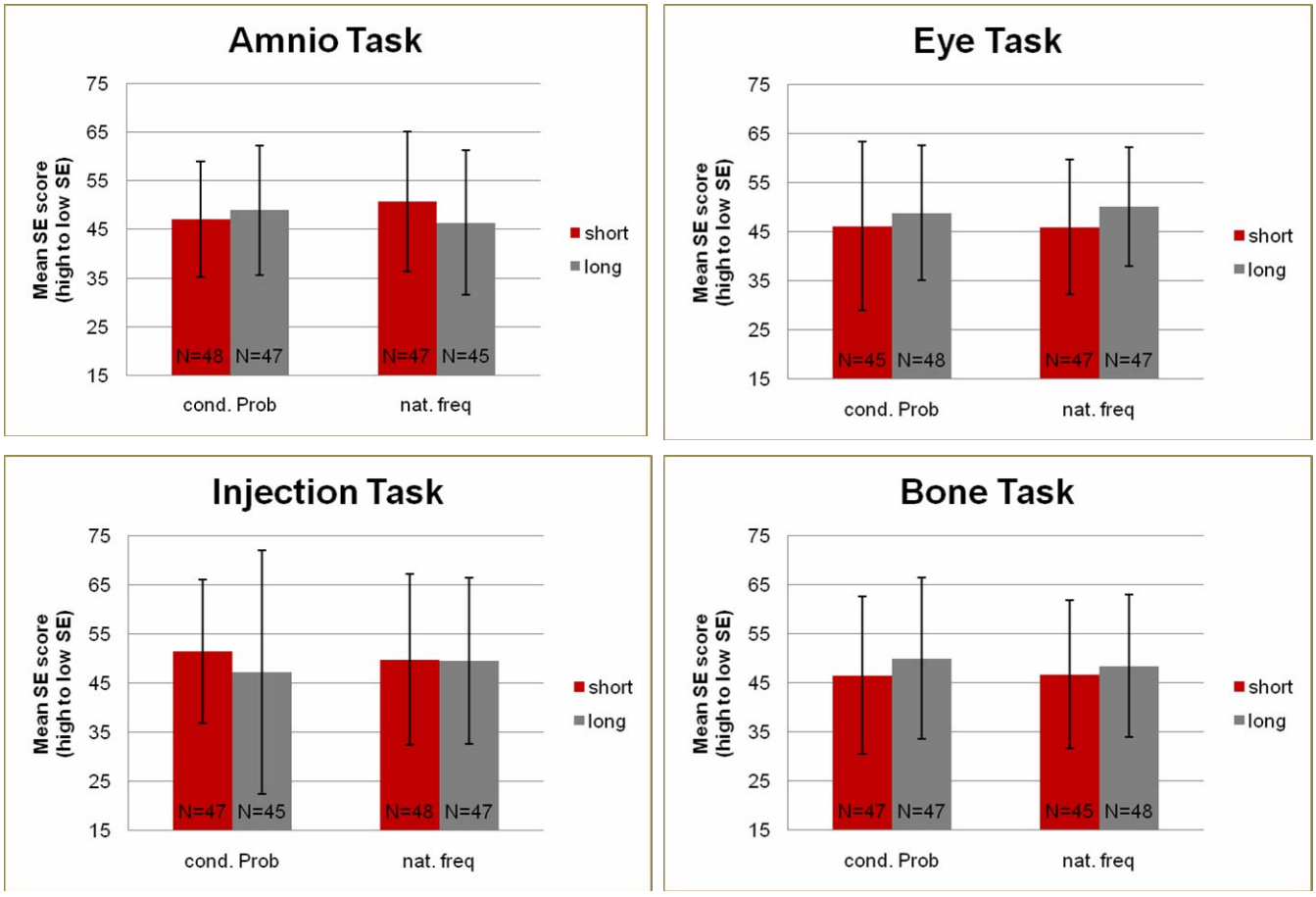

Amnio Task
Mean SE score (high to low SE)
75
65
55
45
35
25
15
N=48
N=47
N=47
N=45
cond. Prob
nat. freq
short
long
Eye Task
Mean SE score (high to low SE)
N=45
N=48
N=47
N=47
cond. Prob
nat. freq
short
long
Injection Task
Mean SE score (high to low SE)
N=47
N=45
N=48
N=47
cond. Prob
nat. freq
short
long
Bone Task
Mean SE score (high to low SE)
N=47
N=47
N=45
N=48
cond. Prob
nat. freq
short
long

**Table 1.**

| task | Amnio | Eye | Injection | Bone |
|---|---|---|---|---|
| referral concern | possible child with Down syndrome | possible retinal detachment | possible skin cancer on arm | possible chronic leg pain |
| risk of concern | 10% / 1 out of every 10 | 13% / 1 out of every 8 | 11% / 1 out of every 9 | 14% / 1 out of every 7 |
| treatment option | amniocentis to find out if child has Down Syndrome | scleral buckling laser treatment to restore vision | experimental injection therapy to prevent cancer development | orthopedic bone surgery to repair bone |
| treatment concern | miscarriage of fetus | blindness | allergic reaction leading to arm amputation | nerve damage causing leg paralysis |
| risk of treatment | .14% / 1 out of every 700 | .11% / 1 out of every 900 | .16% / 1 out of every 600 | .13% / 1 out of every 800 |

**Table 2.**

| DMI Correlations | | |
|---|---|---|
| style | ANA | INT |
| INT | 0.065 | - |
| REG | 0.336* | -0.183* |
| (N=187) *p < .05 | | |

**Table 3.**

## Total Variance Explained in Different Tasks

| | Amnio task | | | Eye task | | | Injection task | | | Bone Task | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Initial Eigenvalues | | | Initial Eigenvalues | | | Initial Eigenvalues | | | Initial Eigenvalues | | |
| Factor | Total | % Variance | Cum % | Total | % Variance | Cum % | Total | % Variance | Cum % | Total | % Variance | Cum % |
| 1 | 6.971 | 38.730 | 38.730 | 7.795 | 43.307 | 43.307 | 8.601 | 47.786 | 47.786 | 8.499 | 47.216 | 47.216 |
| 2 | 1.823 | 10.126 | 48.856 | 1.400 | 7.778 | 51.085 | 1.381 | 7.671 | 55.457 | 1.611 | 8.950 | 56.165 |
| 3 | 1.317 | 7.318 | 56.175 | 1.222 | 6.788 | 57.874 | 1.133 | 6.297 | 61.753 | 1.167 | 6.481 | 62.646 |
| 4 | 1.077 | 5.982 | 62.157 | 1.031 | 5.730 | 63.604 | .947 | 5.264 | 67.017 | .898 | 4.989 | 67.634 |
| 5 | .779 | 4.330 | 66.486 | .882 | 4.899 | 68.503 | .793 | 4.407 | 71.424 | .885 | 4.918 | 72.553 |
| 6 | .726 | 4.034 | 70.520 | .739 | 4.106 | 72.609 | .681 | 3.785 | 75.209 | .743 | 4.125 | 76.678 |
| 7 | .667 | 3.703 | 74.223 | .657 | 3.650 | 76.259 | .629 | 3.494 | 78.703 | .601 | 3.340 | 80.018 |
| 8 | .624 | 3.468 | 77.691 | .619 | 3.438 | 79.697 | .599 | 3.326 | 82.029 | .519 | 2.881 | 82.899 |
| 9 | .600 | 3.331 | 81.022 | .607 | 3.371 | 83.067 | .544 | 3.020 | 85.049 | .490 | 2.723 | 85.622 |
| 10 | .586 | 3.254 | 84.276 | .533 | 2.959 | 86.026 | .477 | 2.652 | 87.701 | .429 | 2.385 | 88.007 |
| 11 | .479 | 2.660 | 86.936 | .464 | 2.577 | 88.603 | .392 | 2.178 | 89.879 | .404 | 2.246 | 90.253 |
| 12 | .430 | 2.387 | 89.322 | .397 | 2.208 | 90.811 | .353 | 1.963 | 91.842 | .346 | 1.923 | 92.176 |
| 13 | .399 | 2.219 | 91.542 | .353 | 1.962 | 92.773 | .299 | 1.661 | 93.503 | .320 | 1.776 | 93.952 |
| 14 | .352 | 1.956 | 93.498 | .335 | 1.862 | 94.636 | .283 | 1.570 | 95.073 | .281 | 1.563 | 95.515 |
| 15 | .332 | 1.842 | 95.340 | .286 | 1.586 | 96.222 | .265 | 1.472 | 96.545 | .245 | 1.359 | 96.873 |
| 16 | .309 | 1.714 | 97.054 | .277 | 1.538 | 97.760 | .244 | 1.354 | 97.898 | .234 | 1.300 | 98.173 |
| 17 | .281 | 1.560 | 98.614 | .228 | 1.265 | 99.025 | .212 | 1.176 | 99.075 | .185 | 1.027 | 99.200 |
| 18 | .249 | 1.386 | 100.000 | .175 | .975 | 100.000 | .167 | .925 | 100.000 | .144 | .800 | 100.000 |

**Table 4.**

| Factor Analysis for task Dependent Measure | | | | |
|---|---|---|---|---|
| | Factor Matrix for 1 factor | | | |
| | Amnio task | Eye task | Injection task | Bone task |
| Item 1 | 0.479 | 0.613 | 0.689 | 0.704 |
| Item 2 | 0.714 | 0.805 | 0.821 | 0.773 |
| Item 3 | -0.575 | -0.622 | -0.721 | -0.732 |
| Item 4 | 0.713 | 0.730 | 0.714 | 0.710 |
| Item 5 | -0.613 | -0.577 | -0.632 | -0.715 |
| Item 6 | -0.671 | -0.568 | -0.687 | -0.659 |
| Item 7 | 0.630 | 0.592 | 0.706 | 0.703 |
| Item 8 | 0.679 | 0.693 | 0.759 | 0.754 |
| Item 9 | -0.572 | -0.675 | -0.745 | -0.706 |
| Item 10 | -0.575 | -0.671 | -0.744 | -0.714 |
| Item 11 | -0.522 | -0.492 | -0.553 | -0.519 |
| Item 12 | 0.519 | 0.598 | 0.631 | 0.591 |
| Item 13 | 0.643 | 0.749 | 0.662 | 0.723 |
| Item 14 | -0.633 | -0.741 | -0.661 | -0.735 |
| Item 15 | 0.606 | 0.596 | 0.635 | 0.632 |
| Item 16 | -0.415 | -0.347 | -0.403 | -0.373 |
| Item 17 | 0.624 | 0.648 | 0.651 | 0.663 |
| Item 18 | 0.381 | 0.537 | 0.528 | 0.409 |
| Chi-Square | 451.580 | 443.643 | 476.188 | 579.246 |
| df | 135 | 135 | 135 | 135 |
| Sig | <.001 | <.001 | <.001 | <.001 |

**Table 5.**

**Correlations Between Task Self-Efficacy (SE) and Decision Styles**

| | | Amnio SE | Eye SE | Injection SE | Bone SE |
|---|---|---|---|---|---|
| Amnio SE | Pearson Correlation | 1 | .786** | .761** | .802** |
| | Sig. (2-tailed) | | .000 | .000 | .000 |
| | Covariance | 187.062 | 153.476 | 165.408 | 169.464 |
| | N | 187 | 187 | 187 | 187 |
| Eye SE | Pearson Correlation | .786** | 1 | .789** | .822** |
| | Sig. (2-tailed) | .000 | | .000 | .000 |
| | Covariance | 153.476 | 204.031 | 179.085 | 181.413 |
| | N | 187 | 187 | 187 | 187 |
| Injection SE | Pearson Correlation | .761** | .789** | 1 | .874** |
| | Sig. (2-tailed) | .000 | .000 | | .000 |
| | Covariance | 165.408 | 179.085 | 252.497 | 214.691 |
| | N | 187 | 187 | 187 | 187 |
| Bone SE | Pearson Correlation | .802** | .822** | .874** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | |
| | Covariance | 169.464 | 181.413 | 214.691 | 238.952 |
| | N | 187 | 187 | 187 | 187 |
| ana | Pearson Correlation | .053 | .030 | .008 | .068 |
| | Sig. (2-tailed) | .468 | .681 | .912 | .352 |
| | Covariance | 7.448 | 4.405 | 1.316 | 10.790 |
| | N | 187 | 187 | 187 | 187 |
| int | Pearson Correlation | -.231** | -.243** | -.261** | -.239** |
| | Sig. (2-tailed) | .001 | .001 | .000 | .001 |
| | Covariance | -28.032 | -30.866 | -36.883 | -32.818 |
| | N | 187 | 187 | 187 | 187 |
| reg | Pearson Correlation | .395** | .448** | .442** | .423** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 |
| | Covariance | 66.079 | 78.251 | 85.938 | 79.946 |
| | N | 187 | 187 | 187 | 187 |

**. Correlation is significant at the 0.01 level (2-tailed).

**Table 6.**

| Correlations with statistics check and task responses | | | | | |
|---|---|---|---|---|---|
| | | Task (N=187) | | | |
| Correlation with statistic check | | Amnio | Eye | Injection | Bone |
| task self-efficacy | Pearson Correlation | .103 | .109 | .071 | 0.157* |
| | Sig. (2-tailed) | .161 | .136 | .333 | .032 |
| | Covariance | 1.205 | 1.336 | .968 | 2.079 |
| task confidence | Pearson Correlation | -.146* | -.135 | -.136 | -.183* |
| | Sig. (2-tailed) | .047 | .065 | .063 | .012 |
| | Covariance | -.328 | -.315 | -.370 | -.473 |
| procedure choice | Pearson Correlation | -.032 | .001 | -.115 | .043 |
| | Sig. (2-tailed) | .668 | .986 | .117 | .560 |
| | Covariance | -.013 | .000 | -.049 | .017 |

*. Correlation is significant at the 0.05 level (2-tailed).

**Appendix A**

**QUESTIONNAIRE PART I.**

**Age ____ Male / Female ____ College Major _____ ID # _____**

We are interested in how you typically go about making decisions. Think about different situations and contexts where you have made decisions recently. Then for each statement below indicate the degree to which you agree or disagree with that statement. Keep in mind that there are no right or wrong answers to any of these items, because there is no single "best" way to make every decision. It is important that you try to answer all questions. However, if you feel uncomfortable with any item, you may choose to omit it. Use the following rating scale for each statement.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| **Strongly Disagree** | **Moderately Disagree** | **Slightly Disagree** | **Slightly Agree** | **Moderately Agree** | **Strongly Agree** |

1 ____ I feel that if I plan my decisions carefully I will make good decisions.

2 ____ In spontaneous decision situations I usually find that I have good intuitions.

3 ____ I think that I could keep myself from worrying later if I had made a bad decision.

4 ____ In making decisions I first try to make a mental list of all the factors or attributes that will be important to my decision.

5____ I can get a good "feeling" for most decision situations very quickly.

6 ____ I sometimes spend too much time hesitating before making decisions.

7 ____ Before I make a decision, I like to figure out the most efficient way of studying it.

8 ____ I feel that I have a knack for making good, quick decisions.

9 ____ Before I make a decision, I think about whether others will approve or disapprove of it.

10____ I'm very rational when it comes to evaluating risky options.

11____ I think that relying on one's "gut feelings" is a sound decision making principle.

12 ____ I tend to be someone who worries a lot over decisions I've made.

13____ In making decisions I first make a careful initial estimate of the situation.

14 ____There are many common sense "rules-of-thumb" that I know of that usually lead to good decisions.

15 ____After making a decision, I find that I often go back and re-evaluate the situation.

16____ I try to pay attention to past information in making new decisions.

17____ Sometimes decisions, even important ones, are not difficult to make because they just "feel" right.

18____ I have trouble putting the results of disappointing decisions I've made behind me.

19____ A good rule of thumb is that the more information I have in making a decision, the better that decision will be.

20 ____Simple decision rules usually work best for me.

21____ I rarely rethink old decisions I've made.

22____ In making decisions I try to evaluate the importance of each piece of information in the decision process.

23____ When forced to make a quick decision, I find that information that readily comes to mind is usually the most useful in making a choice.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| **Strongly Disagree** | **Moderately Disagree** | **Slightly Disagree** | **Slightly Agree** | **Moderately Agree** | **Strongly Agree** |

24____ Worrying about future decisions that I have to make is something I often do.

25____ I always try to be fully prepared before I begin working on making a decision.

26____ My first reaction to a decision situation usually turns out to be the best one.

27____ Many times when I look back on a choice I've made, I wish that I would have put more effort into evaluating the alternatives.

28____ In making decisions I try to examine the importance of the good and bad points of each alternative.

29____ If I can't decide what to do, I go with my "best guess".

30____ When I find out that I've made a bad decision I feel a lot of regret.

31____ I like to take a rational, systematic approach to making decisions.

32____ When making decisions, my first instinct usually turns out to be best.

33____ If I were gambling at a casino I would prefer to play simpler games like slot machines where you don't have to concentrate on playing complex strategies.

34____ My best decisions are those for which I've carefully weighed all of the relevant information.

35____ I let my intuition play a big part in most decisions I make.

36____ I generally don't make very good decisions under time pressure.

37____ I generally rely on careful reasoning in making up my mind.

38____ I often rely on my first impression when making a decision.

39____ I sometimes get "butterflies" in my stomach when I have to make decisions.

40____ I like to make decisions in an orderly manner.

41____ I rely on my intuition in making many of my personal decisions.

42____ After making a decision I sometimes worry about the regret I'll feel if it the outcome turns out to be a bad one.

43____ Most important decisions in life are complex and need to be evaluated in a systematic way.

44____ I find that my best decisions usually result from using the "quick and easy" approach rather than the "slow but sure" method.

45____ Unexpected bad outcomes have a greater impact on me than do unexpected good outcomes.

46____ I waste a lot of time on trivial matters before getting to the final decision.

47 ____ Even after I make a decision I delay acting upon it.

48 ____ I don't make decisions unless I really have to.

49 ____ I delay making decisions until it's too late.

50 ____ I put off making decisions.

51 ____ A quick, intuitive decision rule usually works best for me.

52 ____ I make my best choices when I have to make quick, instinctive decisions.

53 ____ Taking an action that could result in a bad outcome would be worse than taking no action at all.

54 ____ I tend to remember bad decisions I've made.

55 ____ Before I make a decision, I think about whether I might regret it later.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| **Strongly Disagree** | **Moderately Disagree** | **Slightly Disagree** | **Slightly Agree** | **Moderately Agree** | **Strongly Agree** |

1. _____ When I make plans, I am certain I can make them work.
2. _____ One of my problems is that I cannot get down to work when I should.
3. _____ If I can't do a job the first time, I keep trying until I can.
4. _____ When I set important goals for myself, I rarely achieve them.
5. _____ I give up on things before completing them.
6. _____ I avoid facing difficulties.
7. _____ If something looks too complicated, I will not even bother to try it.
8. _____ When I have something unpleasant to do, I stick to it until I finish it.
9. _____ When I decide to do something, I go right to work on it.
10. _____ When trying to learn something new, I soon give up if I am not initially successful.
11. _____ When unexpected problems occur, I don't handle them well.
12. _____ I avoid trying to learn new things when they look too difficult for me.
13. _____ Failure just makes me try harder.
14. _____ I feel insecure about my ability to do things.
15. _____ I am a self-reliant person.
16. _____ I give up easily.
17. _____ I do not seem capable of dealing with most problems that come up in life.
18. _____ When something goes wrong, I can usually think of something to do to make it better.
19. _____ I feel that I have some control over important areas of my life.
20. _____ I have very few personal goals in my life.
21. _____ I feel I have little control over the events in my life and many things happen by chance.
22. _____ I view most problems as personal challenges.
23. _____ I know if I try, things will rum out well.
24. _____ I frequently feel overwhelmed by the things that happen in my life.
25. _____ I regularly engage in activities that I enjoy.
26. _____ Often I know what I want but feel unable to get it.
27. _____ I think I am good at taking care of myself.
28. _____ When faced with a difficult situation, I usually feel like I can handle it.
29. _____ I often have trouble expressing my opinion.
30. _____ Events in my personal life often interfere with my performance at work.
31. _____ If I can't do a job the first time, I keep trying until I can.
32. _____ I enjoy a challenge.
33. _____ I view myself as my own best friend.
34. _____ I like to try new things.
35. _____ I can usually tell people what I think.
36. _____ I'm one of those people who just keep going no matter what happens.
37. _____ I can rely on myself.
38. _____ In uncertain times, I usually expect the best.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| **Strongly Disagree** | **Moderately Disagree** | **Slightly Disagree** | **Slightly Agree** | **Moderately Agree** | **Strongly Agree** |

39. _____ If something can go wrong for me, it will.
40 _____ I'm always optimistic about my future.
41. _____ It's important for me to keep busy.
42. _____ I hardly ever expect things to go my way.
43. _____ I rarely count on good things happening to me.
44. _____ Overall, I expect more good things to happen to me than bad.

1. _____ I feel good about myself as a person.
2. _____ I like who I am.
3. _____ It is hard for me to remember the positive things people say about me.
4. _____ I am very critical of myself.
5. _____ I think I am a worthwhile person.
6. _____ Even though I make mistakes, I still feel good about myself as a person.
7. _____ I think of myself in negative terms (e.g., stupid, lazy).
8. _____ It is easy for me to list 5 things I like about myself.
9. _____ I can never quite measure up to my own standards.
10. _____ I view myself in a positive light (intelligent, caring).
11. _____ Even when I goof up, I basically like myself.
12. _____ There are times when I doubt my worth as a person.
13. _____ I tend to look at what I do badly rather than what I do well.
14. _____ My sense of self-esteem is easily disturbed.
15. _____ When I look in the mirror I like who I see.
16. _____ I can always manage to solve difficult problems if I try hard enough.
17. _____ If someone opposes me, I can find the ways and means to get what I want.
18. _____ I am certain that I can accomplish my goals.
19. _____ I am confident that I could deal efficiently with unexpected events.
20. _____ Thanks to my resourcefulness, I can handle unforeseen situations.
21. _____ I can solve most problems if I invest the necessary effort.
22. _____ I can remain calm when facing difficulties because I can rely on my coping abilities.
23. _____ When I am confronted with a problem, I can find several solutions.
24. _____ If I am in trouble, I can think of a good solution.
25. _____ I can handle whatever comes my way.

**Appendix B**

**(1)Short/ Conditional Probability**
**Situation A**

You/ your partner are pregnant. At a routine doctor's appointment you/ your partner are told that a typical test came back with unusual hormone levels and you should see a genetic counselor. The counselor tells you that the lab results indicate that there is a **10%** chance that the fetus has Down syndrome. The counselor informs you that with an amniocentesis you can find out for sure; however there is a **.14%** chance that the procedure will result in a miscarriage. You and your partner must decide whether or not to have the procedure. (Please select your decision below)

___ Have an amniocentesis
___ Do not have an amniocentesis

**Situation B**

You have been seeing flashes in your vision so you go to the eye doctor. At the appointment you are told that you have an eye condition called Lattice Degeneration, and you should speak to a specialist. The eye specialist tells you that with this condition there is a **13%** chance that you will have retinal tearing which would cause multiple complications in your vision. The specialist informs you that there is a laser treatment called scleral buckling which can prevent retinal detachment and restore your vision; however, there is a **.11%** chance that the procedure will result in blindness. You must decide whether or not to have the procedure. (Please select your decision below)

___ Have the scleral buckling procedure
___ Do not have the scleral buckling procedure

**Situation C**

At a routine doctor's appointment you are told that you have an unusual mole on your lower arm. The doctor identifies it as a benign lesion, and suggests you see a doctor who specializes in skin cancer. The skin specialist tells you that there is an **11%** chance that the lesion could become cancerous. The specialist informs you that there is an experimental injection therapy that will remove the mole and prevent the lesion from becoming cancerous; however, there is a **.16%** chance that the injection therapy will cause an allergic reaction and the doctor will have to immediately amputate your lower arm. You must decide whether or not to have the injection therapy. (Please select your decision below).

___ Have the injection therapy
___ Do not have the injection therapy

**Situation D**

You were recently in an accident where you injured your leg, so you go to the see a doctor. The doctor tells you that you have a hairline fracture and that there is a **14%** chance that the pain in your injured leg will get worse. The doctor informs you that with orthopedic bone surgery they can repair the bone; however, there is a **.13%** chance that the surgery will cause nerve damage, resulting in leg paralysis. You must decide whether or not to have the bone surgery. (Please select your decision below).

___ Have the bone surgery
___ Do not have the bone surgery

**(2)Long/ Conditional Probability**
**Situation A**

You/ your partner are pregnant. At a routine doctor's appointment you/ your partner are told that a typical test came back with unusual hormone levels and you should see a genetic counselor. The counselor tells you that the lab results indicate that there is a **10%** chance that the fetus has Down syndrome. Down syndrome is a genetic disorder that can cause a large variety of developmental problems. Below average cognitive ability, higher risk for heart defects, recurrent ear infections, and digestive problems are some of the potential issues that a person with Down Syndrome is likely to face.

The counselor informs you that with an amniocentesis you can find out for sure whether or not the fetus has Down Syndrome; however there is a **.14%** chance that the procedure will result in a miscarriage. An amniocentesis is a procedure where a thin needle is used to obtain a small amount of amniotic fluid which contains cells of the fetus. The risk of miscarriage is associated with a small hole that may be created during the procedure. Although cognitive development and significant health risks vary greatly in those with Down syndrome, the test does not indicate how severe these will be for the fetus. You and your partner must decide whether or not to have the procedure. (Please select your decision below)

___ Have an amniocentesis
___ Do not have an amniocentesis

**Situation B**

You have been seeing flashes in your vision so you go to the eye doctor. At the appointment you are told that you have an eye condition called Lattice Degeneration, and you should speak to a specialist. The eye specialist tells you that with this condition there is a **13%** chance that you will have retinal tearing which would cause multiple complications in your vision. Light enters your eye and is focused on the retina, which then sends a signal to your brain. Possible complications result from holes or tearing of the retina eventually detaching from the tissues that connect to the retina to the tissues in the eye. Implications on eyesight include: no longer being able to see in your central visual field; straight lines (such as the edge of a wall) suddenly appearing curved; and/or a dense shadow appearing in your peripheral vision.

The specialist informs you that there is a laser treatment called scleral buckling which can prevent retinal detachment and restore your vision; however, there is a **.11%** chance that the procedure will result in blindness. Scleral buckling includes placing a rubber-band like object to secure the retina to the outside of the eye, successfully closing the hole that had formed in the retina. The risk of blindness is associated with the other part of the procedure which involves using a laser to fix the hole or tear that was beginning to cause minor vision problems. You must decide whether or not to have the procedure. (Please select your decision below)

___ Have the scleral buckling procedure
___ Do not have the scleral buckling procedure

**Situation C**

At a routine doctor's appointment you are told that you have an unusual mole on your lower arm. The doctor identifies it as a benign lesion, and suggests you see a doctor who specializes in skin cancer. The skin specialist tells you that there is an **11%** chance that the lesion could become cancerous. Because the mole you have is large and dark, it looks similar to a malignant (cancerous) mole. This similarity in appearance of the mole can make it difficult

to establish changes that would indicate the mole developing into a cancerous lesion. By removing the mole, you may prevent this benign lesion from becoming cancerous.

The specialist informs you that there is an experimental injection therapy that will remove the mole and prevent the lesion from becoming cancerous; however, there is a **.16%** chance that the injection therapy will cause an allergic reaction and the doctor will have to immediately amputate your lower arm. This surgery is new, but has been shown to attack the benign cells and effectively prevent the development of cancerous lesions and new benign moles from growing the surrounding area. The risk of amputation occurs because of the quick nature of the allergic reactions and it is done to prevent the allergic reaction from affecting other areas of the body. You must decide whether or not to have the injection therapy. (Please select your decision below).

___ Have the injection therapy
___ Do not have the injection therapy

**Situation D**

You were recently in an accident where you injured your leg, so you go to the see a doctor. The doctor tells you that you have a severe stress fracture and that there is a **14%** chance that the pain in your injured leg will get worse**.** Stress fractures are also called hairline fractures and cause severe pain with increased use of the injured limb. Without surgery, this type of stress fracture may not heal properly. A fracture that does not heal the way it needs to can cause the bones to become more brittle and cause breaks or other injuries at the same location.

The doctor informs you that with orthopedic bone surgery they can repair the bone; however, there is a **.13%** chance that the surgery will cause nerve damage, resulting in leg paralysis. The surgery is used to successfully repair fractures by placing pins in the fractured area to secure a proper healing. The risk is caused by potential nerve damage from placing pins in the area of the lower leg near the fracture. During the placement of pins into the bone, the surgeon must work around the nerves, and some nerves may not recover if damaged during the procedure. These damaged nerves will cause a loss of sensation and movement in the connected muscles. You must decide whether or not to have the bone surgery. (Please select your decision below).

___ Have the bone surgery
___ Do not have the bone surgery

**(3) Short/ Natural Frequency**
**Situation A**

You/ your partner are pregnant. At a routine doctor's appointment you/ your partner are told that a typical test came back with unusual hormone levels and you should see a genetic counselor. The counselor tells you that **1 out of every 10** people with lab results like yours had a fetus with Down syndrome. She informs you that with an amniocentesis you can find out for sure; however it has been found that about **1 out of every 700** procedures result in a miscarriage. You and your partner must decide whether or not to have the procedure. (Please select your decision below)

___ Have an amniocentesis
___ Do not have an amniocentesis

**Situation B**

You have been seeing flashes in your vision so you go to the eye doctor. At the appointment you are told that you have an eye condition called Lattice Degeneration, and you should speak to a specialist. The eye specialist tells you that **1 out of every 8** people with this condition had retinal tearing which causes multiple complications in your vision. The specialist informs you that there is a laser treatment called scleral buckling which can prevent retinal detachment and restore your vision; however, it has been found that **1 out of every 900** procedures result in blindness. You must decide whether or not to have the procedure. (Please select your decision below)

___ Have the scleral buckling procedure
___ Do not have the scleral buckling procedure

**Situation C**

At a routine doctor's appointment you are told that you have an unusual mole on your lower arm. The doctor identifies it as a benign lesion, and suggests you see a doctor who specializes in skin cancer. The skin specialist tells you that **1 out of every 9** people with lesions like yours have moles that become cancerous. The specialist informs you that there is an experimental injection therapy that will remove the mole and prevent the lesion from becoming cancerous; however, it has been found that **1 out of every 600** people that receive injection therapy have an allergic reaction that leads to the doctor having to immediately amputate an arm. You must decide whether or not to have the injection therapy. (Please select your decision below).

___ Have the injection therapy
___ Do not have the injection therapy

**Situation D**

You were recently in an accident where you injured your leg, so you go to the see a doctor. The doctor tells you that you have a hairline fracture and that **1 out of every 7** people with hairline leg fractures have pain that gets worse. The doctor informs you that with orthopedic bone surgery they can repair the bone; however, **1 out of every 800** people that have orthopedic leg surgery have nerve damage that results in leg paralysis. You must decide whether or not to have the bone surgery. (Please select your decision below).

___ Have the bone surgery
___ Do not have the bone surgery

**(4)Long/ Natural Frequency**

**Situation A**

You/ your partner are pregnant. At a routine doctor's appointment you/ your partner are told that a typical test came back with unusual hormone levels and you should see a genetic counselor. The counselor tells you that **1 out of every 10** people with lab results like yours had a fetus with Down syndrome. Down syndrome is a genetic disorder that can cause a large variety of developmental problems. Below average cognitive ability, higher risk for heart defects, recurrent ear infections, and digestive problems are some of the potential issues that a person with Down Syndrome is likely to face.

The counselor informs you that with an amniocentesis you can find out for sure; however it has been found that about **1 out of every 700** procedures result in a miscarriage. An amniocentesis is a procedure where a thin needle is used to obtain a small amount of amniotic fluid which contains cells of the fetus. The risk of miscarriage is associated with a small hole

that may be created during the procedure. Although cognitive development and significant health risks vary greatly in those with Down syndrome, the test does not indicate how severe these will be for the fetus. You and your partner must decide whether or not to have the procedure. (Please select your decision below)

___ Have an amniocentesis
___ Do not have an amniocentesis

**Situation B**

You have been seeing flashes in your vision so you go to the eye doctor. At the appointment you are told that you have an eye condition called Lattice Degeneration, and you should speak to a specialist. The eye specialist tells you that **1 out of every 8** people with this condition had retinal tearing which would cause multiple complications in your vision. Light enters your eye and is focused on the retina, which then sends a signal to your brain. Possible complications result from holes or tearing of the retina eventually detaching from the tissues that connect to the retina to the tissues in the eye. Implications on eyesight include: no longer being able to see in your central visual field; straight lines (such as the edge of a wall) suddenly appearing curved; and/or a dense shadow appearing in your peripheral vision.

The specialist informs you that there is a laser treatment called scleral buckling which can prevent retinal detachment and restore your vision; however, it has been found that **1 out of every 900** procedures result in blindness. Scleral buckling includes placing a rubber-band like object to secure the retina to the outside of the eye, successfully closing the hole that had formed in the retina. The risk of blindness is associated with the other part of the procedure which involves using a laser to fix the hole or tear that was beginning to cause minor vision problems. You must decide whether or not to have the procedure. (Please select your decision below)

___ Have the scleral buckling procedure
___ Do not have the scleral buckling procedure

**Situation C**

At a routine doctor's appointment you are told that you have an unusual mole on your lower arm. The doctor identifies it as a benign lesion, and suggests you see a doctor who specializes in skin cancer. The skin specialist tells you that **1 out of every 9** people with lesions like yours have moles that become cancerous. Because the mole you have is large and dark, it looks similar to a malignant (cancerous) mole. This similarity in appearance of the mole can make it difficult to establish changes that would indicate the mole developing into a cancerous lesion. By removing the mole, you may prevent this benign lesion from becoming cancerous.

The specialist informs you that there is an experimental injection therapy that will remove the mole and prevent the lesion from becoming cancerous; however, it has been found that **1 out of every 600** people that receive injection therapy have an allergic reaction that leads to the doctor having to immediately amputate an arm. This surgery is new, but has been shown to attack the benign cells and effectively prevent the development of cancerous lesions and new benign moles from growing the surrounding area. The risk of amputation occurs because of the quick nature of the allergic reactions and it is done to prevent the allergic reaction from affecting other areas of the body. You must decide whether or not to have the injection therapy. (Please select your decision below).

___ Have the injection therapy
___ Do not have the injection therapy

**Situation D**

You were recently in an accident where you injured your leg, so you go to the see a doctor. The doctor tells you that you have a hairline fracture and that **1 out of every 7** people with hairline leg fractures have pain that gets worse. Stress fractures are also called hairline fractures and cause severe pain with increased use of the injured limb. Without surgery, this type of stress fracture may not heal properly. A fracture that does not heal the way it needs to can cause the bones to become more brittle and cause breaks or other injuries at the same location.

The doctor informs you that with orthopedic bone surgery they can repair the bone; however, **1 out of every 800** people that have orthopedic leg surgery have nerve damage that results in leg paralysis. The surgery is used to successfully repair fractures by placing pins in the fractured area to secure a proper healing. The risk is caused by potential nerve damage from placing pins in the area of the lower leg near the fracture. During the placement of pins into the bone, the surgeon must work around the nerves, and some nerves may not recover if damaged during the procedure. These damaged nerves will cause a loss of sensation and movement in the connected muscles. You must decide whether or not to have the bone surgery. (Please select your decision below).

___ Have the bone surgery
___ Do not have the bone surgery

## Appendix C

*Questions adapted from the (1-17 item) Generalized Self-Efficacy Scale*

1. After deciding whether or not to have the amniocentesis, I would avoid facing other difficult medical decisions in the future.
2. When unexpected medical problems occur, such as deciding whether or not to have an amniocentesis, I don't handle them well.
3. After deciding whether or not to have an amniocentesis, I would be able to deal with most medical problems that would come up in life.
4. After making the decision of whether or not to have the amniocentesis, I would be insecure about my ability to make other medical decisions.
5. I am certain I would be able to handle my decision of whether or not to have an amniocentesis.

*Questions adapted from the (1-25 item) Unconditional Self-Regard Scale*

6. After making the decision about whether or not to have the amniocentesis, I feel good about myself as a person.
7. After making the decision about whether or not to have an amniocentesis, I am very critical of myself.
8. After deciding whether or not to have an amniocentesis, I would focus on the bad medical decisions I make rather than the medical decisions I make well.
9. After deciding whether or not to have an amniocentesis, I am confident that I could deal efficiently with future unexpected medical events.
10. After making the decision about whether or not to have the amniocentesis, I could handle whatever medical decision comes my way.

*Questions adapted from the (1-27 item) Instrumentality scale (ability to take action and feel sense of control in one's life)*

11. I feel that I have some control over important medical decisions, such as deciding whether or not to have an amniocentesis.
12. After deciding whether or not to have the amniocentesis, I feel that I have little control over important medical decisions in my life, and many things happen by chance.
13. After deciding whether or not to have the amniocentesis, I would feel overwhelmed by the medical situations that happen in my life.
14. When faced with a difficult medical situation, such as whether or not to have an amniocentesis, I usually feel like I can handle it.

*Questions adapted from the self doubt index(20 questions)*

15. After deciding whether or not to have an amniocentesis, I would worry about whether my decision was wrong.
16. After deciding whether or not to have an amniocentesis, I would not focus on the situation any longer.
17. I wouldn't know what to do after making my decision of whether or not to have an amniocentesis.
18. In the situation of needing to decide whether or not to have an amniocentesis, I would not trust myself to make the right choice.

*These questions would refer to a scale of confidence…*

19. How confident are you in your ability to adequately weigh the pros and cons related to having an amniocentesis?
20. How confident are you that you were able to understand the significance of the issues related to an amniocentesis?
21. How confident are you in your ability to understand the outcomes from having or not having an amniocentesis?

**Appendix D**

**Statistics Check**

**Please answer the following questions:**

1. Circle the correct answer. .19% is the same as a probability of:

   .0019 .019 .19 1.9 19 190

2. Circle the percent and probability that go together:

   20% 200 .02% .02 .2% 20 .2

3. Circle the largest statistical probability:

   1 out of 10 1 out of 100 1 out of 1000

4. Which of these would correspond to a greater risk?

   20% .01%